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TWO NEW NEOTROPICAL SPECIES OF THE *FORCIPOMYIA (F.) ARGENTEOLA* SPECIES GROUP (DIPTERA: CERATOPOGONIDAE)

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ABSTRACT. Two new species of the *Forcipomyia (Forcipomyia) argenteola* species group, *F. marini* and *F. uramaensis*, are described and illustrated from specimens collected in northern Venezuela, and compared with the closely related species *F. argenteola* Macfie.

RESUMEN. Dos especies neotropicales nuevas del grupo de *Forcipomyia (F.) argenteola* (Diptera: Ceratopogonidae). Se describen e ilustran dos especies nuevas del grupo de *Forcipomyia (F.) argenteola*, *F. marini* y *F. uramaensis*, ambas capturadas en el norte de Venezuela. Ellas son comparadas con su congénere más cercana, *F. argenteola* Macfie.

The *Forcipomyia (Forcipomyia) argenteola* group was erected by Wirth (1982) to include the previously known species *F. argenteola* Macfie and three species described by him as new: *F. calatheae*, *F. quatei*, and *F. youngi*. Wirth (1982) emphasized the important role that these species play in the Neotropics as pollinators of cacao and other plantations of economic importance. As a result of a research program to study cacao pollinators from Venezuela, 1036 midges were collected during the last decade, which were sent to La Plata for specific identification through courtesy of Dr. Pedro Sánchez, Universidad Simón Bolívar, Caracas, Venezuela. From this collection, we found 60 specimens belonging to two unknown species of the *Forcypomyia argenteola* group, which are herein described and illustrated.

For general ceratopogonid terminology see Downes & Wirth (1981), and for special terms dealing with *Forcipomyia* and recognition of subgenera see Debenham (1987). An excellent diagnosis of adult and immature stages of the *Forcipomyia argenteola* group may be found in Wirth (1982). The types of the new species, mounted in Canada balsam, are deposited in the Museo Nacional, Universidad Central de Venezuela (Facultad de Agronomía, Estado Aragua, Maracay); paratypes are deposited in the collection of the Museo de La Plata, Argentina.

Forcipomyia (Forcipomyia) marini n. sp.
(Figs. 1-6)

Female. Wing length 1.02 (0.97-1.09, n = 5) mm; breadth 0.42 (0.40-0.46, n = 5) mm. Head dark brown, with abundant long brown setae. Antenna (Fig. 1) uniformly brown, lengths of flagellomeres in proportion of 14-12-13-14-14-14-13-13-12-12-12-12-21, antennal ratio 0.65 (0.61-0.67, n = 5). Palpus (Fig. 2) with lenghts of segments in

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proportion of 8-10-23-11-12; palpal ratio 2.32 (2.21-2.40, n = 5); 3rd segment swollen on proximal 1/2, with a deep sensory pit open by a slightly smaller pore. Mandibular teeth vestigial. Thorax with scutum dark brown; pleuron yellow, with few small, brownish spots. Legs (Fig. 3) pale yellow; hind femur with narrow subapical dark brown ring; hind tibia with subbasal, small, dorsal dark brown spot; femora and tibiae with appressed striated brown scales. Tarsi dark brown, due to the abundant presence of striated scales; ventral palisade setae in tarsomeres 1-3 of all legs; hind tarsal ratio 0.76 (0.72-0.80, n = 5). Wing with abundant large dark macrotrichia, specially on costa and radial sector, this area also with striated scales; costal ratio 0.41 (0.40-0.42, n = 5). Halter translucent. Abdomen with terga brown, including last two segments and cerci; pleura yellow. Terga with abundant narrow dark striated scales. Spermathecae (Fig. 4) heavily sclerotized; ovoid, without distinct necks; slightly unequal, measuring 0.076 by 0.048 mm, and 0.069 by 0.048 mm.

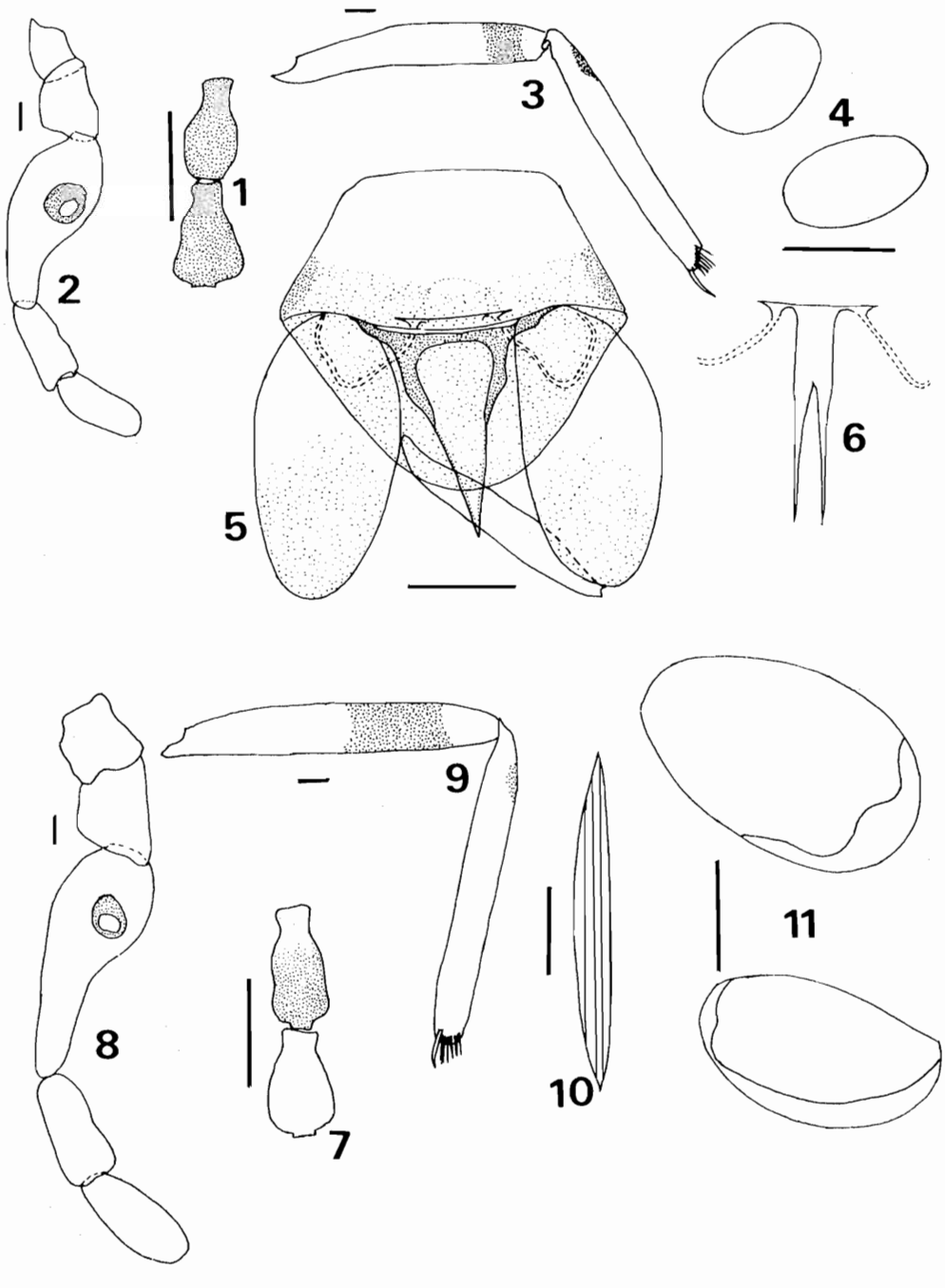
Male. Wing length 1.09 mm; breadth 0.35 mm; costal ratio 0.45. Similar to female with usual sexual differences. Wing pale yellowish brown. Abdomen with broad, brown segmental bands. Genitalia (Figs. 5, 6) slightly longer than broad. Ninth sternum yellowish except distolateral angles, dark brown; proximal 2/5 of 9th tergum yellowish, distal 3/5 brown. Gonocoxite yellowish, brown distally; gonostylus pale. Aedeagus almost hyaline; basal arms large, nearly horizontal, tip pointed. Parameres (Fig. 6) almost hyaline; basal portion fused for about 1/3 of total length, caudomedian emargination narrow and pointed; distal processes slender with pointed apices.

Distribution. Venezuela.

Types. Holotype female and allotype male, Venezuela, Yaracuy, San Felipe, VI-1985, C. Marín. Paratypes, 17 females and 27 males, as follows: same data as types; 1 female and 5 males; same data except XI-1985, 2 females; Aragua, Ocumare de la Costa, IX-1984, C. Marín, 1 male; Aragua, Choroni, VI-1985, C. Marín, 4 females and 6 males; Aragua, Cumboto, IX-1984, C. Marín, 1 female and 1 male; Aragua, Chuao, IV-1985, C. Marín, 8 females and 10 males; Carabobo, Trincheras, VI-1985, C. Marín, 1 female and 4 males.

Forcipomyia (Forcipomyia) uramaensis n. sp.
(Figs. 7-11)

Female. Wing length 1.20 (1.12-1.30, n = 4) mm; breadth 0.50 (0.47-0.55, n = 4) mm. Head dark brown, with abundant long brown setae. Antenna (Fig. 7) with lenghts of flagellomeres in proportion of 16-16-17-17-17-16-16-14-17-18-13-18-27, antennal ratio 0.77 (0.75-0.80, n = 4); eight proximal flagellomeres pale, distal five brown except its apices pale. Palpus (Fig. 8) with lenghts of segments in proportion of 9-11-28-14-14; palpal ratio 2.68 (2.60-2.85, n = 4); 3rd segment swollen on proximal 1/2, with deep sensory pit open by a slightly smaller pore. Mandibular teeth vestigial. Thorax with scutum dark brown; pleuron mainly dark brown, with some yellowish areas. Legs (Fig. 9) pale yellow; hind femur with broad subapical, dark brown ring; hind tibia with subbasal, small, dark brown spot; femora and tibiae with scattered short, appressed, striated scales, more abundant on the dark brown areas. Tarsi pale, with sub-basal brown rings on tarsomeres due to the concentration of scales; ventral palisade setae on tarsomeres 1 and 2 of all legs; hind tarsal ratio 0.66 (0.64-0.68, n = 4). Wing with most of macrotrichia lost, but apparently darker anteriorly, and with a small yellow spot at end of costa; costa and radial sector with striated brown scales; costal ratio 0.45 (0.44-0.46, n = 4). Halter translucent. Abdomen with terga brown, except last two segments and cerci yellow; pleura yellow. Vestiture of rather short brown hairs, those on pleura less conspicuous; terga with narrow brown scales (Fig. 10). Spermathecae



Figs. 1-6. *Forcipomyia marini*. 1-4, female; 5-6, male; 1, flagellomeres 8-9; 2, palpus; 3, femur and tibia of hind leg; 4, spermathecae; 5, genitalia (parameres removed); 6, parameres. Figs. 7-11. *Forcipomyia uramacnsis*, female. 7, flagellomeres 8-9; 8, palpus; 9, femur and tibia of hind leg; 10, abdominal scale; 11, spermathecae. Scale bars = 0.05 mm.

long (Fig. 11), unequal, lightly sclerotized, ovoid without distinct necks, measuring 0.130 by 0.083 mm, and 0.110 by 0.069 mm.

Male. Unknown.

Distribution. Venezuela, known only from the type locality.

Types. Holotype female and three female paratypes, Venezuela, Carabobo, Urama, VI-1985, C. Marín.

Discussion. These two new species are very similar to *F. (F.) argenteola*. During the present study, one female and one male of *F. argenteola* from its type-locality (Brazil, Santa Catarina, Nova Teutônia) were compared with the species herein described. *Forcipomyia (F.) marini* and *F. (F.) uramaensis* may be placed in the couplet 3 of the key for the *F. argenteola* species group (Wirth, 1982) as follows:

3. Mandibular teeth vestigial; hind femur brownish on aproximately distal 1/4, this portion bearing broad brownish scales 4
   Mandible with well developed teeth; femora and tibiae entirely yellowish (hind femur brown at tip in some *F. quatei*, in which case broad scales are pale) 6

4. Antennal ratio 1.12; flagellomere 9 1.8 times longer than flagellomere 8; hind tarsal ratio 0.50-0.55; halter infuscated; spermathecae tapering to slender opening ..... *F. argenteola* Macfie
   Antennal ratio 0.61-0.80; flagellomeres 8 and 9 similar in length; hind tarsal ratio 0.64-0.80; halter translucent; spermathecae ovoid, not tapering to slender opening 5

5. Flagellum uniformly brown, flagellomere 8 longer than 9, antennal ratio 0.61-0.67; 3rd palpal segment relatively short, palpal ratio 2.21-2.40; pleuron mainly yellow; hind tarsal ratio 0.72-0.80; costa short, costal ratio 0.41; spermathecae heavily sclerotized, relatively short ..... *F. marini* n. sp.
   Eight proximal flagellomeres pale, flagellomere 8 shorter than 9, antennal ratio 0.75-0.80; 3rd palpal segment longer, palpal ratio 2.60-2.85; pleuron mainly dark brown; hind tarsal ratio 0.64-0.68; costa longer, costal ratio 0.45; spermathecaes lightly sclerotized, very long ..... *F. uramaensis* n. sp.

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